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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,661	10/20/2003	Kiran Vadgama	58418-3	3920
23971	7590	04/04/2007	EXAMINER	
BENNETT JONES			GAKH, YELENA G	
C/O MS ROSEANN CALDWELL			ART UNIT	PAPER NUMBER
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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	04/04/2007		PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/687,661	VADGAMA ET AL.
	Examiner Yelena G. Gakh, Ph.D.	Art Unit 1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 February 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-6 is/are rejected.
 7) Claim(s) 2,5 and 6 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 20 October 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/20/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Election of claims 1-6 filed on 02/02/07 is acknowledged. Claims 7-20 are withdrawn from consideration.

Drawings

2. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The specification discloses "linear refractive index plot based on published data for refined oils" (page 15).

Specification

3. The disclosure is objected to because of the following informalities: on page 1 in the list of "different fundamental properties" the word "constant" is missing from the expression "dielectric constants".

Appropriate correction is required.

4. The specification is objected to as containing the subject matter that is not disclosed in "full, clear, concise, and exact terms". In particular, in "Summary of the Invention" the expression "at least one measurement device selected to measure density and capacitance of the emulsion within the conduit to generate a density value and a capacitance value" (page 5) is unclear. Is this just one measurement device that can measure both parameters, capacitance and density? It is further unclear, as to what might be "a computing device capable of receiving the density value and the capacitance value from the at least one measurement device and for the purpose of determining the content of water in the emulsion through the application of a refractive index". First, it is not clear, which computing device is not capable of receiving any numbers from an analytical instrument? Second, it is not clear, what the whole expression "receiving the density value and the capacitance value from the at least one measurement device

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and for the purpose of determining the content of water" might mean? The expression does not seem to be grammatically correct, and its sense is not apparent. How the computing device (computer) can receive the density value and the capacitance value, and then determine water content "through the application of a refractive index"? These two computer functions do not apparently relate to each other.

In "Detailed Description of the Invention" the disclosure does not make it obvious, as to why the calculation of the refractive index from capacitance measurements and density measurement is necessary, if the refractive index is linearly proportional to density, and density is directly determined (page 7)? From page 8 it is not apparent, as to what the expression "the capacitance measuring device may be calibrated according to linear data regarding the refractive index of an emulsion of oil and water to provide output" might mean. The expression is not clear. Further, it is not clear, how "the output of the capacitance device may be used to obtain a refractive index of the emulsion", if previously the disclosure stated that there should be two parameters measured to obtain refractive index - capacitance and density? The expression "the density oil may then be applied to a linear curve with the value of the refractive index of the oil" does not make any sense.

Also, from the next paragraph it is not clear, which specifically "at least one device calibration value" is obtained from density and capacitance values.

Further on the page the specification discloses, "one embodiment involves an iterative process to derive values required to determine a water fraction value. This method of deriving values involves multiple determinations of a value". What this "multiple determinations" are? Are they performed in time? Are they performed when one of the parameters is varied?

Claim Objections

5. Claims 2, 5 and 6 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 recites the limitation for the emulsion, which

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is not a part of the apparatus. Therefore, the recitation of claim 2 does not further limit the structure of the apparatus recited in the parent claim.

Claim 5 recites “wherein the pipe extends between a truck and a holding tank”; it does not appear that the truck and the holding tank are parts of the apparatus; therefore, claim 5 does not recite any further structural limitation to the apparatus of claim 1; the second part of the claim is a method step, which is not relevant to the subject matter of the elected set of claims.

Claim 6 recites a capacitance device. Claim 1 recites a measurement device, which generates a capacitance value, i.e. a capacitance device. It does not seem that there is any other device that can generate the capacitance value. Claim 1 does not recite a device, which measures some parameter, from which the capacitance value can be obtained, and therefore at least one device recited in claim 1 is a capacitance device.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “at least one measurement device selected to measure density and capacitance of the emulsion within the conduit to generate a density value and a capacitance value” and “a computing device capable of receiving the density value and the capacitance value from the at least one measurement device and for the purpose of determining the content of water in the emulsion through the application of a refractive index”. The expressions are not clear, as was indicated above in the objection to the specification. The specification in the Detailed Description discloses separate devices for measuring density and capacitance. Moreover, the expression “at least one measurement device selected to measure density and capacitance” may be interpreted as a recitation of at least one device, which is selected for measuring either density, or capacitance. Otherwise, it is not clear, what the word “selected” means here. As for the computing device, as it has been indicated above, any computer is capable of receiving any values from an analytical device, so any computer will be considered as meeting the limitations

of the claims. The purpose of computer usage is not a patentable subject matter, at least in the form it is recited in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1-6** are rejected under 35 U.S.C. 102(b) as being anticipated by Bussian et al. (US 4,802,361) or Way et al. (CA 2,074,017, IDS or US 5,325,066).

Bussian discloses “a production stream analyzer, which analyzes a flowing crude oil production stream in a conduit, includes a temperature sensor, a capacitance measuring device and a densitometer which provide corresponding temperature, capacitance and density signals, respectively” (Abstract). The apparatus is applied for determining the water cut in a pipe 1 (col. 3, line 55).

Way discloses an apparatus for measuring the content of water in an emulsion including hydrocarbon and water, comprising “means to measure the density of said liquid hydrocarbon and water mixture ([emulsion], ... means to measure the capacitance of said liquid hydrocarbon and water mixture” and a computing device 24 (Figure 2) capable of receiving the density value and the capacitance value (page 7). The purpose of receiving these values is not a subject matter of the claimed invention. The apparatus further comprises temperature measuring device (resistance temperature device, RTD, page 3) and a pipeline 10 with a liquid hydrocarbon, conventionally oil, flowing there (page 8).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Hädrich (J. Chem. Phys., 1976)* teaches “a simple empirical function for density computation using the measured refractive index of some selected hydrocarbons”; *Sadykhov et al. (Chem. Technol. Fuels and Oils, 1969)* disclose “quantitative determination of the iso-propanol and water contents of petroleum products by spectrophotometry” in “method of

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assessing the quality of fuels and oils"; Rebbouth et al. (*J. Chem. Phys.*, 1990) teach "simultaneous measurements of refractive index and density in a micro-emulsion near a critical end point"; *Hammer et al. (WO 90/02941)* disclose an instrument for determining the proportions of gas, water and oil in a gas/water/oil mixture, comprising a capacitive sensor and a density sensor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/28/07


YELENA GAKH
PRIMARY EXAMINER